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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/802,339

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Jimmy Philip

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02/22/2006

GENERAL ELECTRIC COMPANY
GLOBAL RESEARCH
PATENT DOCKET RM. BLDG. K1-4A59
NISKAYUNA, NY 12309

EXAMINER

JAGAN, MIRELLYS

ART UNIT

PAPER NUMBER

2859

DATE MAILED: 02/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/802,339	PHILIP ET AL.	
	Examiner	Art Unit	
	Mirellys Jagan	2859	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9, 11-18, 32 and 33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 15-18, 32 and 33 is/are rejected.
- 7) ☒ Claim(s) 11-14 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 5, 6, and 32 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 6,338,571 to Chen.

Chen discloses an assembly comprising:

a thermistor element (24);

a positioning device (30) for positioning the element at a predetermined location within the assembly;

at least two lead wires extending from the element; and

a moisture-proof shield (22) disposed to encapsulate the element and the positioning device, the shield comprising a surface energy enhancing material disposed over the element and the positioning device;

wherein the location is at a central location within the assembly; the positioning device comprises a cavity extending through the device and adapted (at 33) for receiving the element; at least three internal lobes (32) adapted to (using 211) position the element within the assembly

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(22); and a groove (31) positioned between two of the lobes (see figures 2 and 3; and column 2, lines 33-65).

Furthermore, the shield (22) of Chen is considered to be a 'surface energy enhancing' material since the specification does not provide a definition of 'surface energy enhancing'. The specification only describes the 'surface energy enhancing' material as being a material having moisture-proof capabilities. Therefore, since the shield (22) of Chen is moisture-proof (metal) functions to cover the sensor element and the positioning device, and is made of a metal (heat-conducting material), it is considered to be a 'surface energy enhancing' material.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen in view of U.S. Patent Application Publication 2003/0146819 to Shibayama.

Chen discloses an assembly having all of the limitations of claims 2 and 3, as stated above in paragraph 2, except for the thermistor being a ceramic thermistor, and the thermistor having a cross-sectional area profile that is either circular or square shaped.

Shibayama discloses an assembly comprising a thermistor element (10) comprising a thermistor made of a ceramic material and having a cross-sectional profile that is either circular or square shaped (thermistors are either circular or square shaped). At least two metal lead wires

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(FeCr 30) extend from the element, and a conductor material (40) couples to the thermistor element through the lead wires. A surface enhancing insulating material (epoxy 90) disposed over the conductor material, wherein the lead wires and the conductor material are welded together. Shibayama teaches that a ceramic thermistor is useful as a temperature sensor in a temperature sensor probe assembly (see figures 1 and 2A).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the assembly of Chen by using a ceramic thermistor as the temperature sensing thermistor element, as taught by Shibayama since Shibayama teaches that a ceramic thermistor is a useful thermistor for sensing temperature in a temperature sensor probe assembly.

5. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen in view of U.S. Patent 6,485,175 to Nimberger et al [hereinafter Nimberger].

Chen discloses an assembly having all of the limitations of claim 4, as stated above in paragraph 2, except for the material of the positioning device being made of PVC.

Nimberger discloses a thermistor probe assembly having a thermistor and lead wires connected to the thermistor and to conductor material for obtaining temperature measurements from the thermistor. The thermistor and lead wires are encased in a guide tube (97G) for inserting in a probe of the assembly, wherein the tube is made of PVC. Nimberger teaches that it may be desirable to provide a PVC material in order to electrically isolate the sensing assembly (see figure 10; column 10, lines 21-40)

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It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the assembly of Chen by making the positioning device of PVC, since Nimberger teaches that PVC is a useful material for use in a thermistor probe assembly when it is desired to provide electrical isolation, and since the courts have held that a selection of a material on the basis of suitability for intended use of an apparatus would be entirely obvious. See *In re Leshin*, 125 USPQ 416 (CCPA 1960).

6. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen in view of U.S. Patent 4,548,780 to Krohn.

Chen discloses an assembly having all of the limitations of claims 7 and 8, as stated above in paragraph 2, except for the assembly further comprising a conductor material coupled to the thermistor element through the wires, and the material of the conductor material being brass.

Krohn discloses a thermostatic probe assembly having a sensing element and lead wires connected to a conductor material (12) for obtaining thermal signals and connecting to electrical circuitry. The conductor material is made of brass for connecting the assembly to appropriate electrical circuitry (see column 2, lines 49-51).

Referring to claim 7, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the assembly of Chen by coupling a brass conductor material to the thermistor element through the wires, as taught by Krohn, in order to connect to electrical circuitry to obtain thermal signals/measurements, and since Krohn teaches that brass is a useful material for a conductor material in a probe assembly, and since the courts have held

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that a selection of a material on the basis of suitability for intended use of an apparatus would be entirely obvious See *In re Leshin*, 125 USPQ 416 (CCPA 1960).

7. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen and Krohn, as applied to claims 7 and 8 above, and further in view of U.S. Patent 5,221,916 to McQueen.

Chen and Krohn disclose an assembly having all of the limitations of claim 9, as stated above in paragraph 6, except for conductor material having an insulating material disposed thereon.

McQueen discloses a thermometer probe assembly comprising a temperature sensor in a probe, and conductor wires extending therefrom for providing electrical connection to measure temperature. McQueen teaches that it is beneficial to provide an insulating material over the conductor wires in order to provide physical and electrical protection.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the assembly of Chen and Krohn by providing an insulating material over the conductor material, as taught by McQueen, in order to protect the conductor material from physical or electrical harm.

8. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen and Krohn, as applied to claims 7 and 8 above, and further in view of U.S. Patent Application Publication 2002/0071475 to Betzner et al [hereinafter Betzner].

Chen and Krohn disclose an assembly having all of the limitations of claim 15, as stated above in paragraph 6, except for the lead wires being soldered to the conductor material.

Betzner discloses that it is known in the art to connect the lead wires of a thermistor of a probe assembly to a conductor material by soldering them together. The conductor material coupled to the lead wires of the thermistor connects the thermistor to electrical circuitry to obtain temperature measurement from the thermistor signals (see paragraph 2).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the assembly of Chen and Krohn by soldering the lead wires to conductor material, as taught by Betzner, in order to securely connect the thermistor to electrical circuitry and obtain temperature measurements from the thermistor signals.

9. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen and Krohn, as applied to claims 7 and 8 above, and further in view of Shibayama.

Chen and Krohn disclose an assembly having all of the limitations of claim 16, as stated above in paragraph 6, except for the lead wires being welded to the conductor material.

Shibayama discloses an assembly comprising a thermistor element (10) comprising a thermistor made of a ceramic material and having a cross-sectional profile that is either circular or square shaped (thermistors are either circular or square shaped). At least two metal lead wires (FeCr 30) extend from the element, and a conductor material (40) couples to the thermistor element through the lead wires. A surface enhancing insulating material (epoxy 90) disposed over the conductor material, wherein the lead wires and the conductor material are welded together. Shibayama teaches that a ceramic thermistor is useful as a temperature sensor in a temperature sensor probe assembly (see figures 1 and 2A).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the assembly of Chen and Krohn by the lead wires and the conductor material are welded together, as taught by Krohn, in order to securely connect to electrical circuitry to obtain thermal signals/measurements.

10. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen in view of U.S. Patent 6,305,841 to Fukaya et al (hereinafter Fukaya).

Chen discloses an assembly having all of the limitations of claim 17, as stated above in paragraph 2, except for the metal material of the lead wires comprising steel.

Fukaya discloses a thermistor probe assembly having a thermistor and attached lead wires at the probe tip. The probe assembly further comprises a conductor material (lead wires 4) coupled to the lead wires of the thermistor by welding for connecting to electrical circuitry to obtain temperature measurement from the thermistor signals. The lead wires are made of a metal, such as stainless steel, and the conductor material is covered with insulation (plastic material) in order to protect and strengthen the conductor material (see figure 1; column 4, lines 38-48; and column 6, lines 14-40 and 59-63).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the assembly of Chen by making the lead wires of a metal such as stainless steel since Fukaya teaches that steel is a useful material for making the lead wires in a thermistor probe assembly to provide an electrical connection to measure temperature, and since the courts have held that a selection of a material on the basis of suitability for intended use of an apparatus would be entirely obvious. See *In re Leshin*, 125 USPQ 416 (CCPA 1960).

11. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen in view of U.S. Patent Application Publication 2002/0131477 to Kurano.

Chen discloses an assembly having all of the limitations of claim 18, as stated above in paragraph 2, except for the lead wires comprising copper.

Kurano discloses a thermistor probe assembly having a thermistor and lead wires connected to the thermistor. Kurano teaches that a metal such as copper is a useful material for making the lead wires, which further connect to a conductor material and to electric circuitry to obtain temperature measurement from the thermistor signals (see figure 1; paragraphs 4-7 and 23).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the assembly of Chen by making the lead wires of copper, since Kurano teaches that copper is a useful material for making lead wires in a thermistor assembly in order to connect the thermistor to electrical circuitry and obtain a temperature measurement from the thermistor signals, and since the courts have held that a selection of a material on the basis of suitability for intended use of an apparatus would be entirely obvious See *In re Leshin*, 125 USPQ 416 (CCPA 1960).

12. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen in view of Shibayama.

Chen discloses an assembly having all of the limitations of claim 33, as stated above in paragraph 2, except for at least three of the lobes being externally directed.

Shibayama discloses a positioning device for positioning a thermistor element at a central location within a probe assembly, the positioning device comprising a cavity extending therethrough and adapted for receiving part of the thermistor element (wires); and at least three externally directed self-centering lobes adapted to position the positioning device and the thermistor element therein within the assembly. Shibayama teaches that it is beneficial to provide lobes around the positioning element when injecting material (epoxy) in the assembly in order to prevent the positioning device from shifting out of position due to the pressure encountered when the material is inserted (see figures 7C and 7D; and paragraphs 71-73).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the assembly of Chen by adding at least three externally directed self-centering lobes to the positioning device, as taught by Shibayama, in order to prevent the positioning device and the thermistor from shifting out of position due to the pressure encountered when the positioning device is inserted.

Allowable Subject Matter

13. Claims 11 and 13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claims 12 and 14 are allowable for being dependent on an allowable base claim.

14. The following is a statement of reasons for the indication of allowable subject matter:

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The prior art of record does not disclose or suggest the following in combination with the remaining limitations of the claims:

A thermistor probe assembly wherein the surface energy enhancing material is disposed over the conductor material (see claim 11); or wherein the moisture proof shield comprises a molding material (see claim 13).

Response to Arguments

15. Applicant's arguments with respect to claims 1-18, 32, and 33 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mirellys Jagan whose telephone number is 571-272-2247. The examiner can normally be reached on Monday-Friday from 11AM to 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez can be reached on 571-272-2245. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MJ
February 18, 2006



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